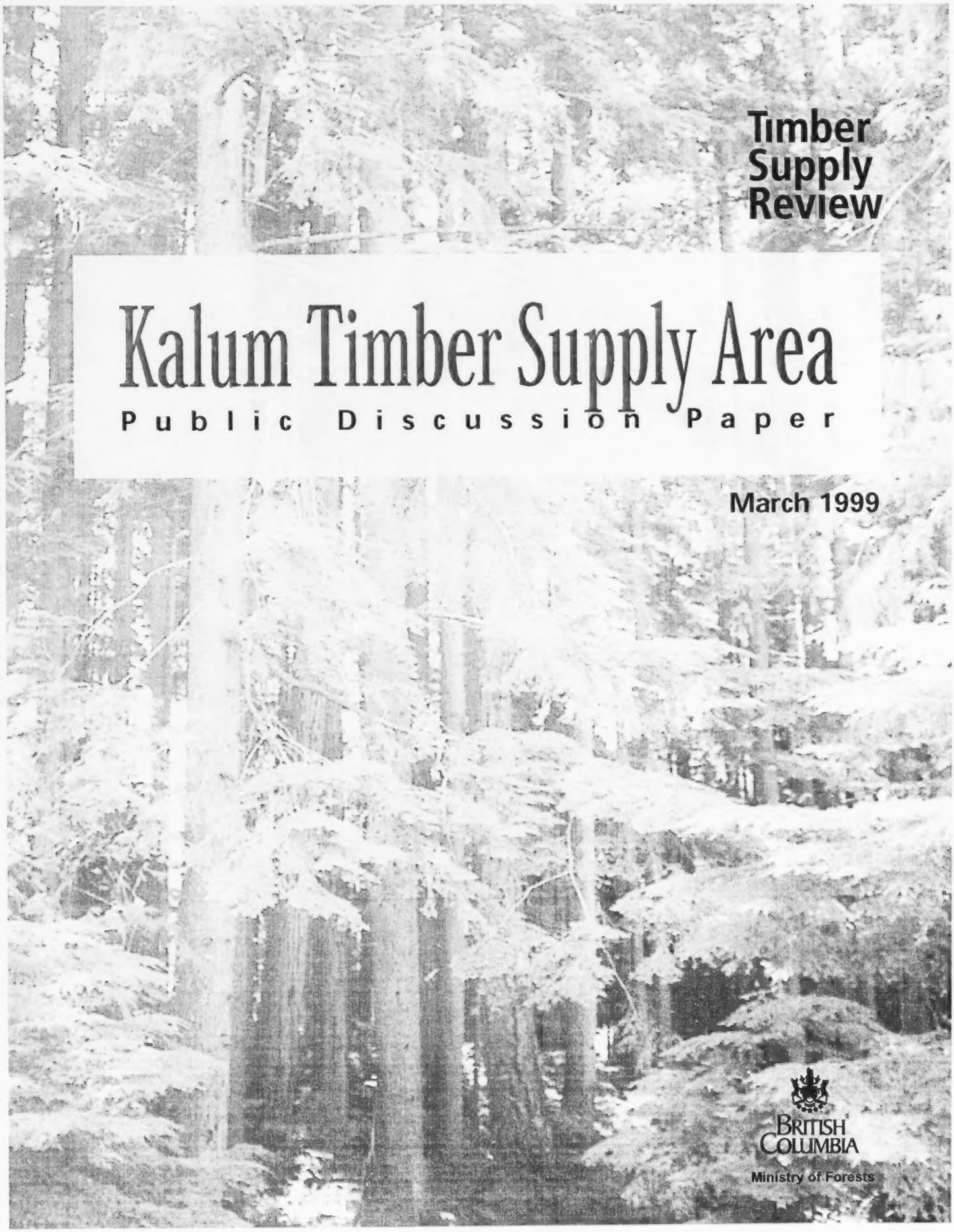


Timber Supply Review

Kalum Timber Supply Area

Public Discussion Paper

March 1999

BRITISH COLUMBIA
Ministry of Forests

103-07286/

Introduction

The British Columbia Forest Service is reviewing the timber supply for all timber supply areas* (TSAs) and tree farm licences (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, if necessary, the chief forester may adjust the allowable annual cut (AAC) for the Kalum TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. The objectives of the Timber Supply Review are:

- to identify relevant economic, environmental and social information based on current forest management practices including their effects on the short- and long-term timber supply
- to identify where improved information is required for future timber supply forecasts
- to provide the chief forester with information to make any necessary adjustments to the AACs for the next five years

Timber Supply Review in the Kalum TSA

The *Kalum TSA Data Package and Information Report* were released in January 1998. Following this, the documents were reviewed by licensees, the public and government agencies. The BC Forest Service has now completed the *Kalum Timber Supply Area Analysis Report* which is summarized in this discussion paper. The objectives of this document are to provide British Columbians with an overview of the timber supply review and forecasts for the Kalum TSA and to encourage them to provide comments during the 60-day public review period. Public comments will be accepted until May 31, 1999.

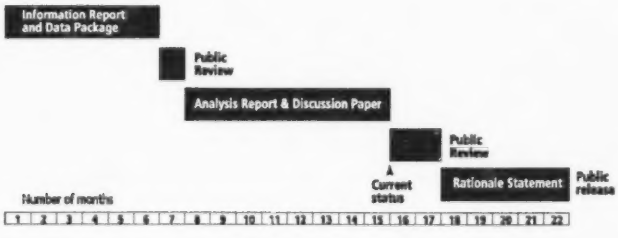
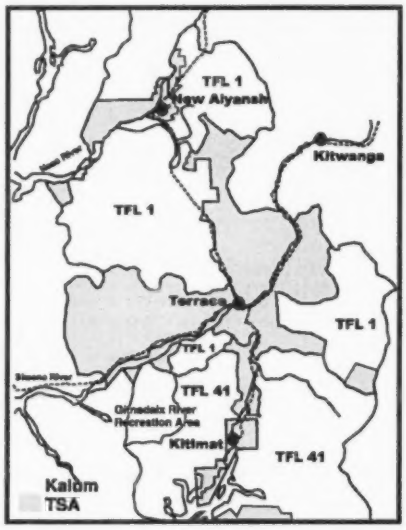

Information Report and Data Package
Public Review
Analysis Report & Discussion Paper
Public Review
Current status
Rationale Statement
Public release
Number of months
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Figure 1. ***Review process for the Kalum TSA***

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement which will be available, along with the *Summary of Public Input*, to the public. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA



The Kalum TSA is situated in northwestern B.C. and is administered by the Kalum Forest District office in Terrace. The TSA covers approximately 540,000 hectares, not including the two adjoining tree farm licences (TFL 1 and TFL 41). Of the approximately 33,470 people in the Kalum TSA (1996 census), 75 per cent live in the towns of Terrace and Kitimat.

Forest land resources

Numerous natural resources are associated with the forest land base. In the Kalum TSA these include forest products, significant fish and wildlife habitat, and recreation and tourism amenities.

The varied environment of the Kalum TSA ranges from estuaries and flat valley bottoms, to rugged mountainous upper slopes. This creates a diverse forested environment which provides habitat for a wide variety of wildlife species including grizzly bear,

**** A timber supply area is an integrated resource management unit established in accordance with section 7 of the Forest Act.***

black bear, kermode bear, deer, fisher, northern goshawk, moose, marten, raptors and owls.

The rivers and ocean support significant fishery resources, including salmon species, Dolly Varden char, cutthroat trout, eulachons, and steelhead. Estuaries, floodplains and islands provide habitat for a wide variety of birds and other species.

Socio-economic profile

Regional economy

Information from the 1996 census indicates that the forestry sector (harvesting-related activity) accounted for seven per cent of the Kalum Forest District's employment (Figure 2). Wood processing is included in the manufacturing sector and in 1996, direct forest-related employment at mills in Kitimat and Terrace amounted to almost 1,200 positions. Other forestry-related employment is included in the FIRE (Finance, insurance, real estate and other business services) and public sector categories. All of this forest-related employment relies on wood from both the Kalum and Nass TSAs, as well as adjacent TFLs.

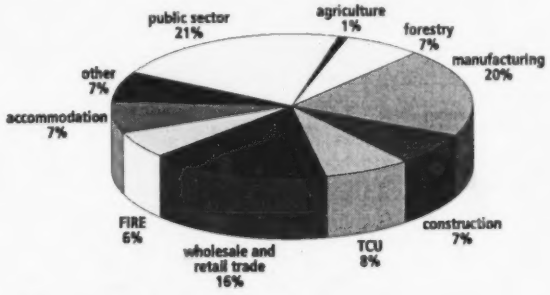


Figure 2. ***Employment by industry sector for the Kalum Forest District, 1996***

Source: Statistics Canada / BC Stats: Labour Force Survey
Note: TCU is transportation, communications and utilities.
FIRE is finance, insurance, real estate and other business services.

Figure 2 shows that the public sector, manufacturing (including Alcan, Eurocan and Methanex in Kitimat), and wholesale and retail sectors are significant employers in the Kalum Forest District. Accommodation services accounted for a further seven per cent of the labour force, indicating that tourism plays an important role in the regional economy, as do transportation and communications, business services, and construction.

Summary of Local and Provincial Economic Impacts

(Figures based on current AAC of 464,000 cubic metres)

	TSA	Provincial
Direct employment (person years)	353	437
Total employment (person years)	554	898
Total employment income ($1997 millions per year)	24.2	37.3
Provincial government revenues ($1997 millions per year)	n.a.	10.9

Figure 3. ***Economic Summary***

Figure 3 illustrates the potential contribution of the forest industry associated with the Kalum TSA to both the regional and provincial economies.

Current allowable annual cut

On January 1, 1996, the chief forester reduced the AAC by three per cent to 464,000 cubic metres from 480,000 cubic metres.

Land use planning

A land and resource management plan is currently being developed for the Kalum area. The planning process provides an opportunity for the public, interest groups and government to make recommendations regarding future management of public forest lands. The plan is currently considered in phase two and is expected to be implemented by the end of 2000. Once the plan has been approved by government and implemented, it will be considered in future timber supply reviews.

Timber supply forecasts

A timber supply computer model is used to project several possible timber supply forecasts for the next 250 years. One of these forecasts is the base case forecast which illustrates the effect of current forest management on timber supply. The base case is not an AAC recommendation, but rather, it is one of many sources of information the chief forester will consider when setting the AAC. The base case forecast presented in this report is for discussion and comparative purposes and, due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the base case forecast.

The base case timber supply forecast for the Kalum TSA indicates the current AAC of 464,000 cubic

103-07286/

Introduction

The British Columbia Forest Service is reviewing the timber supply for all timber supply areas* (TSAs) and tree farm licences (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, if necessary, the chief forester may adjust the allowable annual cut (AAC) for the Kalum TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. The objectives of the Timber Supply Review are:

- to identify relevant economic, environmental and social information based on current forest management practices including their effects on the short- and long-term timber supply
- to identify where improved information is required for future timber supply forecasts
- to provide the chief forester with information to make any necessary adjustments to the AACs for the next five years

Timber Supply Review in the Kalum TSA

The *Kalum TSA Data Package and Information Report* were released in January 1998. Following this, the documents were reviewed by licensees, the public and government agencies. The BC Forest Service has now completed the *Kalum Timber Supply Area Analysis Report* which is summarized in this discussion paper. The objectives of this document are to provide British Columbians with an overview of the timber supply review and forecasts for the Kalum TSA and to encourage them to provide comments during the 60-day public review period. Public comments will be accepted until May 31, 1999.

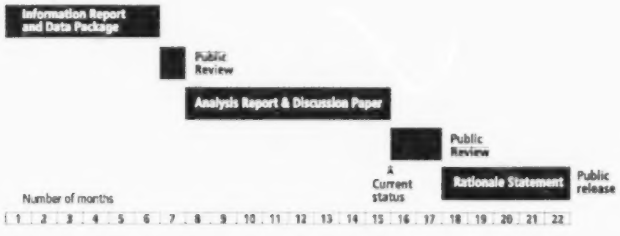
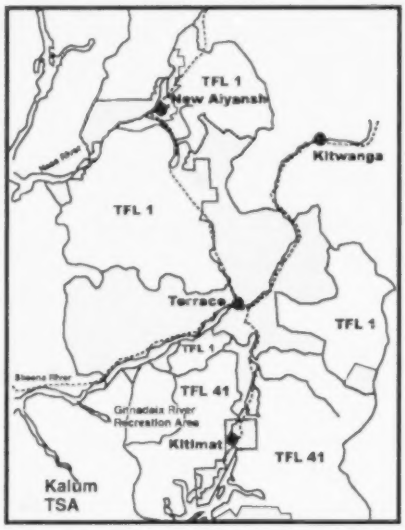

Information Report and Data Package
Public Review
Analysis Report & Discussion Paper
Public Review
A Current status
Rationale Statement
Public release
Number of months
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Figure 1. ***Review process for the Kalum TSA***

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement which will be available, along with the *Summary of Public Input*, to the public. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA



The Kalum TSA is situated in northwestern B.C. and is administered by the Kalum Forest District office in Terrace. The TSA covers approximately 540,000 hectares, not including the two adjoining tree farm licences (TFL 1 and TFL 41). Of the approximately 33,470 people in the Kalum TSA (1996 census), 75 per cent live in the towns of Terrace and Kitimat.

Forest land resources

Numerous natural resources are associated with the forest land base. In the Kalum TSA these include forest products, significant fish and wildlife habitat, and recreation and tourism amenities.

The varied environment of the Kalum TSA ranges from estuaries and flat valley bottoms, to rugged mountainous upper slopes. This creates a diverse forested environment which provides habitat for a wide variety of wildlife species including grizzly bear,

**** A timber supply area is an integrated resource management unit established in accordance with section 7 of the Forest Act.***

black bear, kermode bear, deer, fisher, northern goshawk, moose, marten, raptors and owls.

The rivers and ocean support significant fishery resources, including salmon species, Dolly Varden char, cutthroat trout, eulachons, and steelhead. Estuaries, floodplains and islands provide habitat for a wide variety of birds and other species.

Socio-economic profile

Regional economy

Information from the 1996 census indicates that the forestry sector (harvesting-related activity) accounted for seven per cent of the Kalum Forest District's employment (Figure 2). Wood processing is included in the manufacturing sector and in 1996, direct forest related employment at mills in Kitimat and Terrace amounted to almost 1,200 positions. Other forestry related employment is included in the FIRE (Finance, insurance, real estate and other business services) and public sector categories. All of this forest-related employment relies on wood from both the Kalum and Nass TSAs, as well as adjacent TFLs.

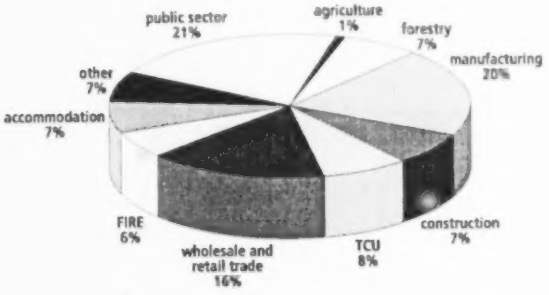


Figure 2. ***Employment by industry sector for the Kalum Forest District, 1996***

Source: Statistics Canada / BC Stats: Labour Force Survey
Note: TCU is transportation, communications and utilities.
FIRE is finance, insurance, real estate and other business services.

Figure 2 shows that the public sector, manufacturing (including Alcan, Eurocan and Methanex in Kitimat), and wholesale and retail sectors are significant employers in the Kalum Forest District. Accommodation services accounted for a further seven per cent of the labour force, indicating that tourism plays an important role in the regional economy, as do transportation and communications, business services, and construction.

Summary of Local and Provincial Economic Impacts

(Figures based on current AAC of 464,000 cubic metres)

	TSA	Provincial
Direct employment (person years)	353	437
Total employment (person years)	554	898
Total employment income ($1997 millions per year)	24.2	37.3
Provincial government revenues ($1997 millions per year)	n.a.	10.9

Figure 3. ***Economic Summary***

Figure 3 illustrates the potential contribution of the forest industry associated with the Kalum TSA to both the regional and provincial economies.

Current allowable annual cut

On January 1, 1996, the chief forester reduced the AAC by three per cent to 464,000 cubic metres from 480,000 cubic metres.

Land use planning

A land and resource management plan is currently being developed for the Kalum area. The planning process provides an opportunity for the public, interest groups and government to make recommendations regarding future management of public forest lands. The plan is currently considered in phase two and is expected to be implemented by the end of 2000. Once the plan has been approved by government and implemented, it will be considered in future timber supply reviews.

Timber supply forecasts

A timber supply computer model is used to project several possible timber supply forecasts for the next 250 years. One of these forecasts is the base case forecast which illustrates the effect of current forest management on timber supply. The base case is not an AAC recommendation, but rather, it is one of many sources of information the chief forester will consider when setting the AAC. The base case forecast presented in this report is for discussion and comparative purposes and, due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the base case forecast.

The base case timber supply forecast for the Kalum TSA indicates the current AAC of 464,000 cubic

metres can be maintained for 30 years without requiring rapid future harvest level reductions or creating severe future timber disruptions. Thirty years from now, the timber supply is forecast to decline over two decades to 387,000 cubic metres and stay at that level until 120 years from now when it rises to the long-term harvest level of 431,500 cubic metres per year.

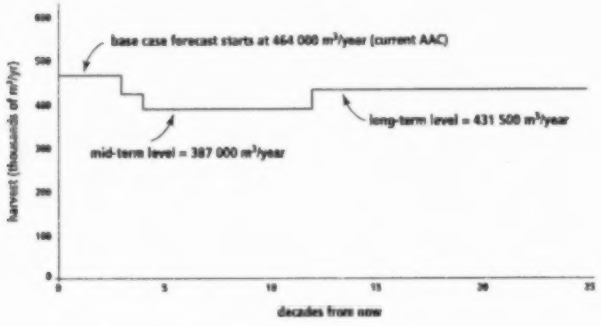

base case forecast starts at 464 000 m³/year (current AAC)
long-term level = 431 500 m³/year
mid-term level = 387 000 m³/year
harvest (thousands of m³/yr)
decades from now

Figure 4. *Base case timber supply forecast, 1999*

The projected rate of harvest indicates a more stable timber supply than previous analyses owing to adjustments to reflect higher site productivity and changes to the minimum harvestable ages.

In the last analysis, the commercial thinning program was found to have a small impact on timber supply. Similarly in this base case forecast, commercial thinning makes a fairly small contribution to the overall timber supply in the short term although the program creates additional harvesting flexibility and helps achieve objectives for integrated resource management.

Sensitivity analyses: examining uncertainty

Since forests are complex and constantly changing, timber supply analysts assess how their timber supply forecast results might be affected by uncertainties in the inventory information and management practices. These uncertainties are examined in sensitivity analyses which the chief forester will consider in determining an AAC. The sensitivity analyses are useful for assessing how any changes in information or uncertainties and risks might affect timber supply.

In the Kalum TSA, due to new information, ongoing land claim discussions, changing markets and the implementation of new forest practices, a number of sensitivity analyses were undertaken to examine the stability of the timber supply. In general, the sensitivity analyses indicated that the short-term timber supply is stable. However, uncertainties did affect the timing of the transition to the long-term harvest level and in some cases, the long-term harvest level itself. Some of the key sensitivity analyses conducted in the timber supply analysis are shown below. For a complete listing, please refer to the *Kalum TSA Analysis Report*.

Uncertainty in site productivity estimates

The productivity of a site largely determines how quickly trees will grow, and therefore affects green-up time, minimum harvestable age and projections of volumes expected from regenerated stands. Site productivity is expressed as site index (height at 50 years of age).

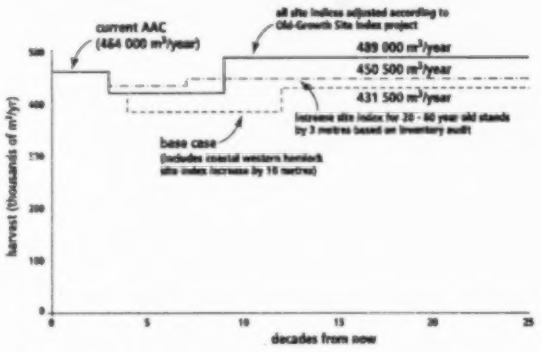

current AAC
(464 000 m³/year)
all site indices adjusted according to Old-Growth Site Index project
489 000 m³/year
450 500 m³/year
431 500 m³/year
increase site index for 20 - 60 year old stands by 3 metres based on inventory audit
base case
(includes coastal western hemlock site index increase by 10 metres)
harvest (thousands of m³/yr)
decades from now

Figure 5. *Harvest forecasts using different site index adjustments*

Since the last timber supply review in the Kalum TSA, a study was done to assess site productivity. The study concluded that site indices derived for older hemlock stands underestimate, on average, the site productivity by 10 metres. This finding was included in the base case.

Figure 5 shows that while short-term timber supply is not affected by site productivity estimates, the effect on long-term harvest levels can be significant. If site index adjustments were applied according to a recent inventory audit, the long-term harvest forecast would be about six per cent higher than the base case long-term forecast. The province-wide average adjustments for all stands from the veteran study associated with the Old-Growth Site Index project, increases the long-term forecast by 13 per cent over the base case.

Research to date has provided an estimate of the maximum potential productivity that might be expected from a future forest. How well most regenerated stands will perform, compared to this theoretical maximum, is still uncertain.

Uncertainty in land base

There is uncertainty regarding the size of the timber harvesting land base. The potential effects of land claims are discussed in the First Nations section (see below).

It has been suggested that the timber harvesting land base may be larger (about 4.5 per cent) than currently estimated due to additional land being available for helicopter logging.

Figure 6 illustrates the potential impact to timber supply from uncertainty about the land base. If the timber harvesting land base was increased by 10 per cent, the current AAC could be maintained for three decades with only a small decline in the mid-term and an increase of about 10 per cent in the long-term.

If the land base was decreased by 10 per cent, the current harvest level could still be maintained for one decade and decline to 361,000 cubic metres in the mid term, and 385,000 cubic metres in the long-term.

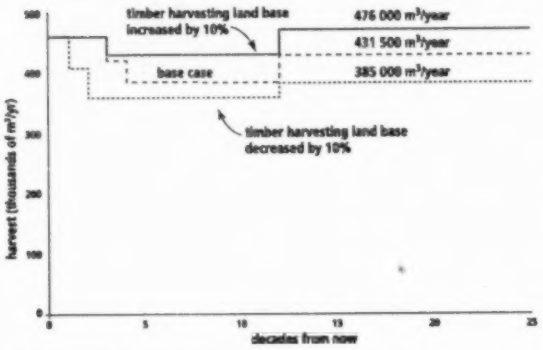

timber harvesting land base increased by 10%
476 000 m³/year
431 500 m³/year
base case
385 000 m³/year
timber harvesting land base decreased by 10%
harvest (thousands of m³/yr)
decades from now

Figure 6. Land base uncertainty, 1999

Implications of changes in the AAC

Environmental Implications

Current forest management follows the Forest Practices Code which set standards for a range of critical biodiversity and wildlife values in the Kalum TSA. About 50 per cent of the forested area in the TSA is not considered available for timber harvesting and will contribute to many environmental values, including the maintenance of critical forest habitats for many species. On the timber harvesting land base, about 10 per cent is managed for environmentally sensitive areas, riparian habitat and wildlife trees concerns, and a further 23 per cent is managed for watershed and visual quality concerns.

First Nations

The Kalum TSA is within the overlapping traditional territories of a number of First Nations represented by six tribal organizations: Nisga'a, Tsimshian, Haisla, Carrier Sekani, Wet'suwet'en and Gitxsan.

The Nisga'a have negotiated a comprehensive land claim which covers a portion of the Kalum TSA. The total land claim area is 32,286 hectares and about 4,700 hectares is within the timber harvesting land base. This area represents a potential six per cent decrease to the timber harvesting land base. Figure 7 illustrates the potential impact of the Nisga's Final Agreement on timber supply.

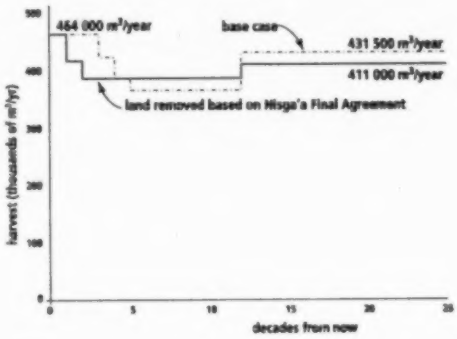


Figure 7 Potential impact of Nisga'a Final Agreement

The treaty has been approved by the Nisga'a Nation and is yet to be ratified by the provincial and federal governments. When the treaty has been finalized it will be accounted for in either this or future timber supply reviews.

The Tsimshian and Haisla Nations are in the process of treaty negotiations. The Gitxsan and the province are conducting bilateral negotiations under a 1998 Reconciliation Agreement.

All of the First Nations located with the Kalum TSA have expressed concern about timber harvesting in areas with high cultural and economic values, as well as interest in greater participation in forest harvesting, silviculture, and other forest-based activities.

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. Communities within the Kalum TSA are highly reliant on the forest sector. If the current AAC of 464,000 cubic metres is fully harvested and processed, it would support approximately 437 person-years of direct and 461 person-years of indirect and induced employment in the province. The base case forecast indicates the current

AAC of 464,000 cubic metres can be maintained for the next three decades. Not until the fourth and fifth decades, or after a minimum of 30 years, would the harvest decline and affect employment levels.

Recent harvests from the Kalum TSA have been close to the AAC, although the 1997 harvest fell approximately 12 per cent below the allowable level. This means that if the AAC is maintained at 464,000 cubic metres, the level of forestry activity in the TSA can likely increase slightly from recent levels.

Your input is needed

Establishing the AAC is an important decision which requires well informed and thoughtful public input. Feedback is welcomed on any aspect of this discussion paper, the Kalum TSA Analysis Report and other issues related to the timber supply in the Kalum TSA. Forest Service staff would be pleased to discuss questions or concerns you may have that would help you prepare your response. Please mail your comments to the forest district manager at the address below. Your comments will be accepted until May 31, 1999.

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the Freedom of Information and Protection of Privacy Act and may be made public. If the responses are requested, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:
District Manager, B.C. Forest Service
Kalum Forest District, 200-5220 Keith Avenue
Terrace, B.C. V8G 1L1

Phone: (250) 638-5100 Fax: (250) 638-5176 or electronically mail to
Rod.Meredith@gems3.gov.bc.ca.

Background Information Regarding TSR

The Chief Forester's Responsibility

Determining the Allowable Annual Cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. Section 8 of the *Forest Act* requires the chief forester to consider the following factors:

- the rate of timber production that may be sustained from the area;
- the short- and long-term implications to the province of alternative rates of timber harvesting from the area;
- the nature, production capabilities and timber requirements of established and proposed processing facilities;
- the economic and social objectives of the Crown for the area, region and province—as expressed by the Minister of Forests; and,
- abnormal insect or disease infestations, and major salvage programs planned for the area.

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from any source, including interest groups. However, he cannot allow these determinations to be inappropriately influenced by the advocacy efforts of one group.

Why the current AAC may be higher than the long-term harvest level.

Some concern has been expressed that the AACs are higher than the long-term harvest level. There are two main factors which explain this difference:

- In the short-term, harvesting takes place in older forests which have accumulated high timber volumes by growing for a long time. Future harvesting on the same sites will take place in second-growth forests at younger ages, yielding lower volumes per hectare.
- Where the long-term harvest level is significantly below the current AAC, the chief forester's strategy is to phase in the lower level over several determinations to allow communities which rely on the forest sector to avoid sudden economic disruptions and to plan for the future—provided the long-term harvest level is not jeopardized.

Visit our website at http://www.for.gov.bc.ca/tsb

BRITISH COLUMBIA 989 FTSB 037-3/99 QP XXXXX

Cover photo: Candace Kenyon